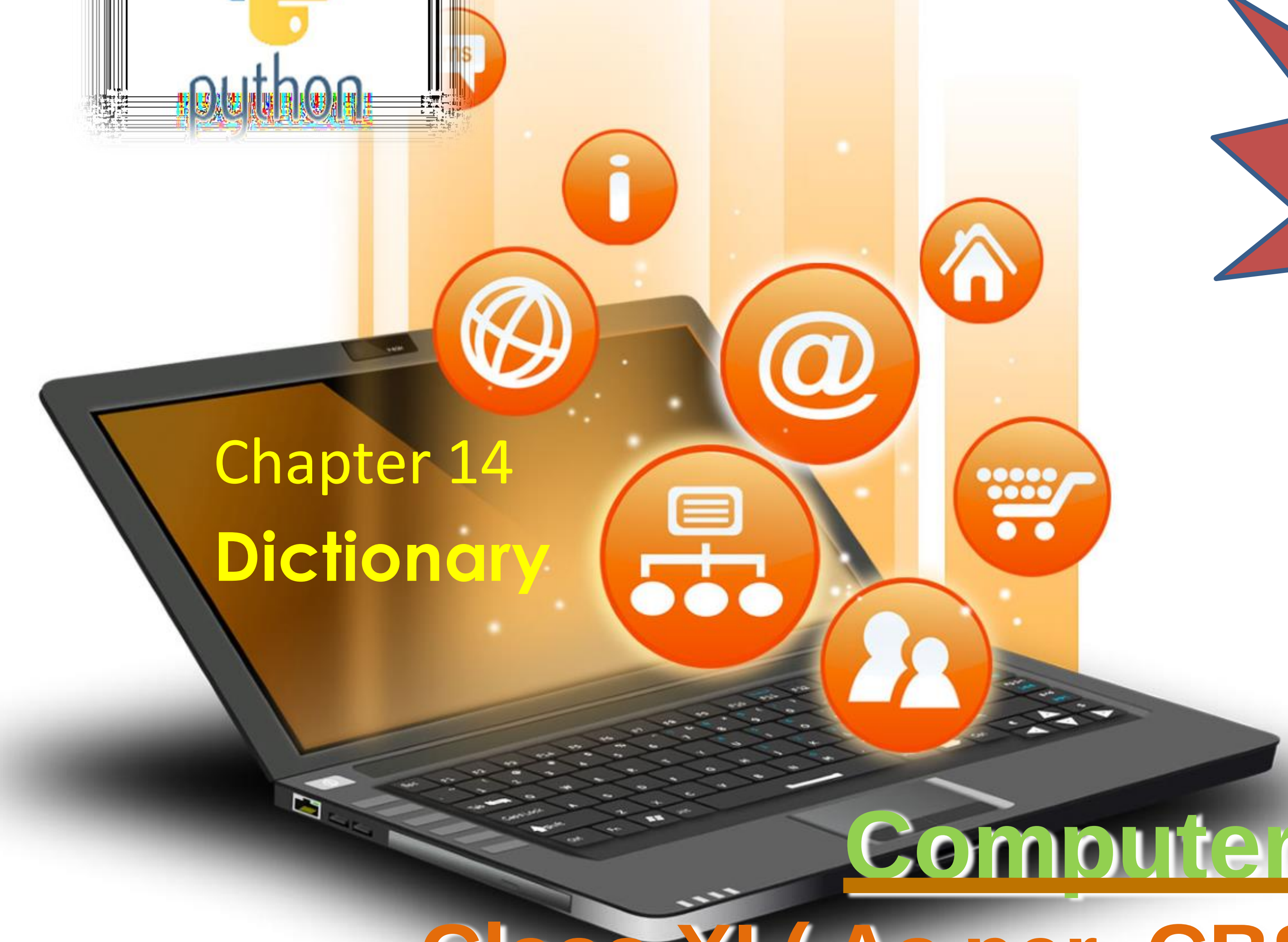


Termwise Syllabus 2021-22

Chapter 14

Dictionary

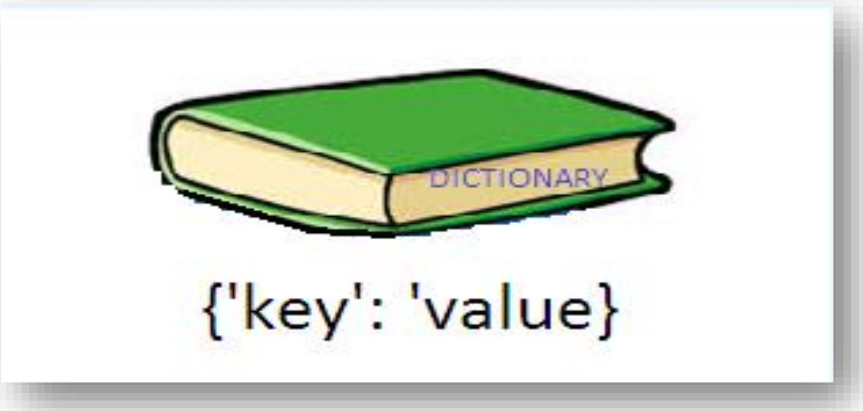
Computer Science

Class XI (As per CBSE Board)

Visit : python.mykvs.in for regular updates

Dictionary

It is an unordered collection of items where each item consist of a key and a value.
It is mutable (can modify its contents) but Key must be unique and immutable.



```
{'key': 'value}
```

Dictionary

Creating A Dictionary

It is enclosed in curly braces {} and each item is separated from other item by a comma(,). Within each item, key and value are separated by a colon (:).Passing value in dictionary at declaration is dictionary initialization.get() method is used to access value of a key

e.g.

```
dict = {‘Subject': ‘Informatic Practices', 'Class': ‘11'}
```

Accessing List Item

```
dict = {'Subject': 'Informatics Practices', 'Class': 11}
print(dict)
print ("Subject : ", dict['Subject'])
print ("Class : ", dict.get('Class'))
```

OUTPUT

```
{'Class': '11', 'Subject': 'Informatics Practices'}
('Subject : ', 'Informatics Practices')
('Class : ', 11)
```

Dictionary

Iterating / Traversing through A Dictionary

Following example will show how dictionary items can be accessed through loop.

e.g.

```
dict = {'Subject': 'Informatics Practices', 'Class': 11}
for i in dict:
    print(dict[i])
```

OUTPUT

```
11
Informatics Practices
```

Updating/Manipulating Dictionary Elements

We can change the individual element of dictionary.

e.g.

```
dict = {'Subject': 'Informatics Practices', 'Class': 11}
dict['Subject']='computer science'
print(dict)
```

OUTPUT

```
{'Class': 11, 'Subject': 'computer science'}
```

Dictionary

Deleting Dictionary Elements

del, pop() and clear() statement are used to remove elements from the dictionary.

del e.g.

```
dict = {'Subject': 'Informatics Practices', 'Class': 11}
print('before del', dict)
del dict['Class'] # delete single element
print('after item delete', dict)
del dict #delete whole dictionary
print('after dictionary delete', dict)
```

Output

```
('before del', {'Class': 11, 'Subject': 'Informatics Practices'})
('after item delete', {'Subject': 'Informatics Practices'})
('after dictionary delete', <type 'dict'>)
```

Dictionary

pop() method is used to remove a particular item in a dictionary. clear() method is used to remove all elements from the dictionary.

e.g.

```
dict = {'Subject': 'Informatics Practices', 'Class': 11}
print('before del', dict)
dict.pop('Class')
print('after item delete', dict)
dict.clear()
print('after clear', dict)
```

Output

```
('before del', {'Class': 11, 'Subject': 'Informatics Practices'})
('after item delete', {'Subject': 'Informatics Practices'})
('after clear', {})
```

Dictionary

Built-in Dictionary Functions

S.No.	Function & Description
1	len(dict)Gives the total length of the dictionary. It is equal to the number of items in the dictionary. **dict = {'Name': 'Aman', 'Age': 37};** **print ("Length : %d" % len (dict))** **OUTPUT ->2**
2	str(dict)Return a printable string representation of a dictionary
3	type(variable)If variable is dictionary, then it would return a dictionary type.

Dictionary

Built-in Dictionary Methods

S.No.	Method & Description
1	dict() - creates dictionary x = dict(name = “Aman", age = 37, country = “India") Here x is created as dictionary

2	keys() - returns all the available keys
	x = dict(name = “Aman", age = 37, country = “India")
	print(x.keys())
	OUTPUT->dict_keys(['country', 'age', 'name'])

3	values() - returns all the available values
	x = dict(name = “Aman", age = 37, country = “India")
	print(x.values())
	OUTPUT->dict_values(['India', 37, 'Aman'])

Dictionary

Built-in Dictionary Methods

S.No.	Method & Description

4	items() - return the list with all dictionary keys with values.
	x = dict(name = "Aman", age = 37, country = "India")
	print(x.items())
	OUTPUT->dict_items([('country', 'India'), ('age', 37), ('name', 'Aman')])

5	update()-used to change the values of a key and add new keys
	x = dict(name = "Aman", age = 37, country = "India")
	d1 = dict(age= 39)
	x.update(d1,state="Rajasthan")
	print(x)
	OUTPUT-{'country': 'India', 'age': 39,'name':'Aman','state': 'Rajasthan'}

Dictionary

Built-in Dictionary Methods

S.No.	Method & Description

6	del -used to remove key
	x = dict(name = "Aman", age = 37, country = "India")
	del x['age']
	print(x)
	OUTPUT->{'country': 'India', 'name': 'Aman'}
	del x -> will remove complete dictionary

7	fromkeys() – is used to create dictionary from keys
	keys = {'a', 'e', 'i', 'o', 'u' }
	value ="Vowel"
	vowels = dict.fromkeys(keys, value)
	print(vowels)
	OUTPUT-> {'i': 'Vowel', 'u': 'Vowel', 'e': 'Vowel', 'a': 'Vowel', 'o': 'Vowel'}

Dictionary

Built-in Dictionary Methods

S.No.	Method & Description

8	copy() - returns a shallow copy of the dictionary.
	x = dict(name = "Aman", age = 37, country = "India")
	y=x.copy()
	print(y)
	print(id(x))
	print(id(y))
	OUTPUT - >{'country': 'India', 'age': 37, 'name': 'Aman'}
	33047872
	33047440

9	popitem() – removes last item from dictionary
	x = dict(name = "Aman", age = 37, country = "India")
	x.popitem()
	print(x)
	OUTPUT-> {'age': 37, 'name': 'Aman'}

Dictionary

Built-in Dictionary Methods

S.No.	Method & Description

10	setdefault() method returns the value of the item with the specified key. If the key does not exist, insert the key, with the specified value.
	x = dict(name = "Aman", country = "India")
	y=x.setdefault('age',39)
	print(y)
	OUTPUT-> 39

11	max() – returns key having maximum value
	Tv = {'a':100, 'b':1292, 'c' : 88}
	Keymax = max(Tv, key=Tv.get)
	print(Keymax)
	OUTPUT-> b

12	min()- returns key having minimum value

Dictionary

Built-in Dictionary Methods

S.No.	Method & Description

13	sorted- sort by key or value
	dict1 = {'b':100, 'a':12, 'c' : 88}
	y = sorted(dict1.items(),key=lambda x: x[1],reverse=True)
	print(y)
	OUTPUT-> [('b', 100), ('c', 88), ('a', 12)]

Dictionary

count the number of times a character appears in agiven string using a dictionary

```
input_string = "python.mykvs.in"
frequencies = {}
for char in input_string:
   if char in frequencies:
      frequencies[char] += 1
   else:
      frequencies[char] = 1
print ("Per char frequency in '{}' is :\n {}".format(input_string,
str(frequencies)))
```

OUTPUT

```
Per char frequency in 'python.mykvs.in' is :
 {'i': 1, 'h': 1, 'k': 1, 'm': 1, 'o': 1, 'n': 2, 'p': 1, 's': 1, 't': 1, 'v': 1, 'y': 2, '.': 2}
```

Dictionary

create a dictionary with names of employees, their salary and access them

```
employees =
{'Aman':{'salary':'10000'},'Mayur':{'salary':'51000'}}
employee1 = employees['Aman']
print(employee1)
```

OUTPUT

```
{'salary': '10000'}
```

Dictionary

Questions.

1. Create dictionary to store 4 student details with rollno,name,age field.Search student in list.
2. Create dictionary for month and noofdays for a year. User is asked to enter month name and system will show no of days of that month.